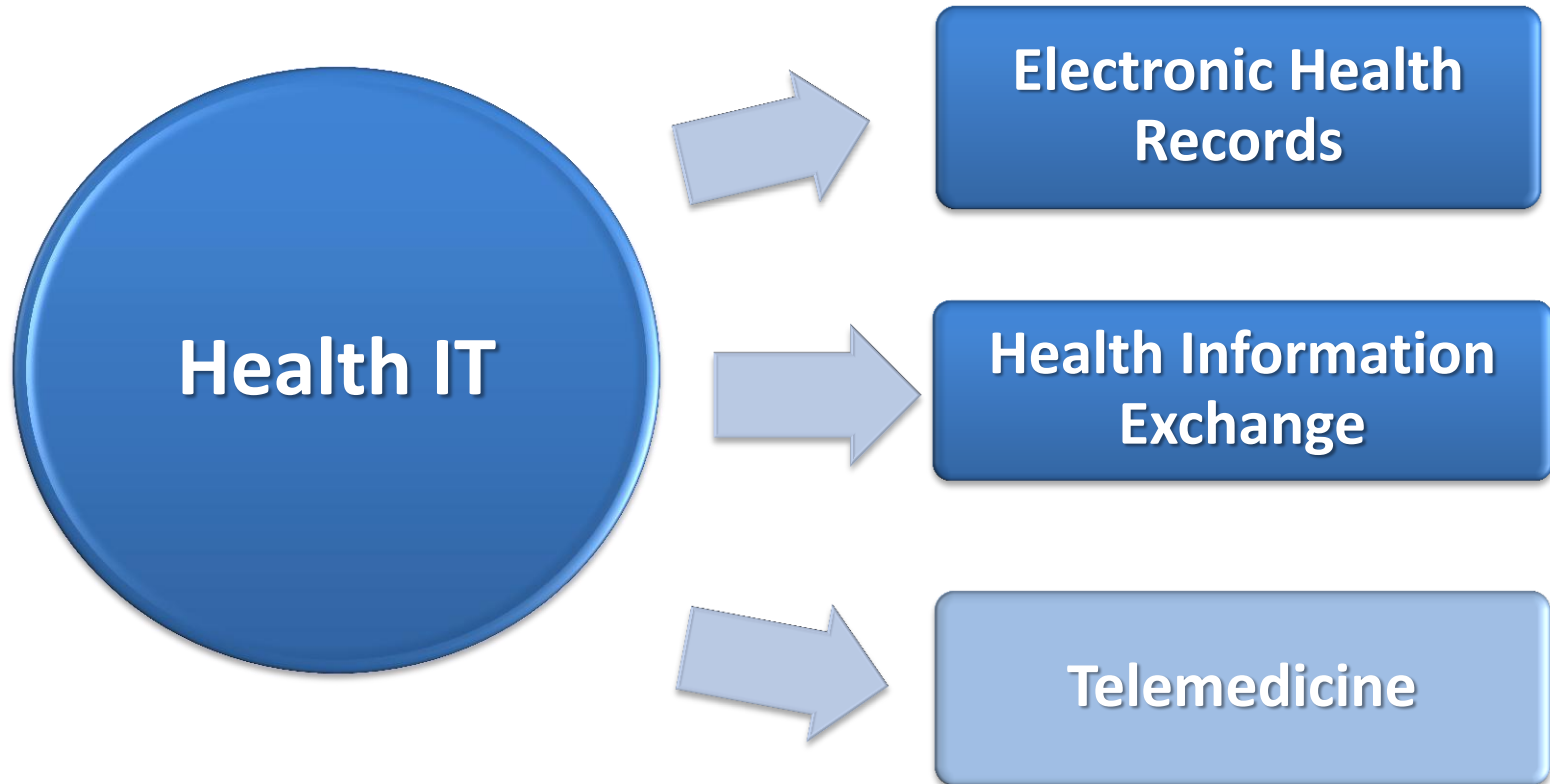# Maryland
Health Information Exchange

Impact on Cancer Screening, Treatment, and Reporting

Annual Maryland State Council on Cancer Control Cancer Conference
December 5, 2012

The **MARYLAND**
HEALTH CARE COMMISSION

Discussion Points

Health IT

→ **Electronic Health Records**

→ **Health Information Exchange**

→ **Telemedicine**

Our Role

- The Center for Health Information Technology is responsible for advancing health IT statewide

- An ambitious plan for advancing health IT adoption and integration that aims to achieve the following

  - Balance the need for information sharing with the need for strong privacy and security policies

  - Identify challenges to health IT adoption and use, and formulate solutions and best practices that address these challenges

  - Increase the availability and use of standards-based health IT through consultative, educational, and outreach activities

  - Plan and implement a statewide health information exchange (HIE)

  - Harmonize service area HIE efforts throughout the State

  - Designate management service organizations (MSOs) to promote the adoption and advanced use of electronic health records (EHRs)

Bridging the Gap with Health IT

Manual Process

- Patient intake
- Tracking reports
- Medication and allergy interactions
- Public health reporting

EHR

HIE/Portal

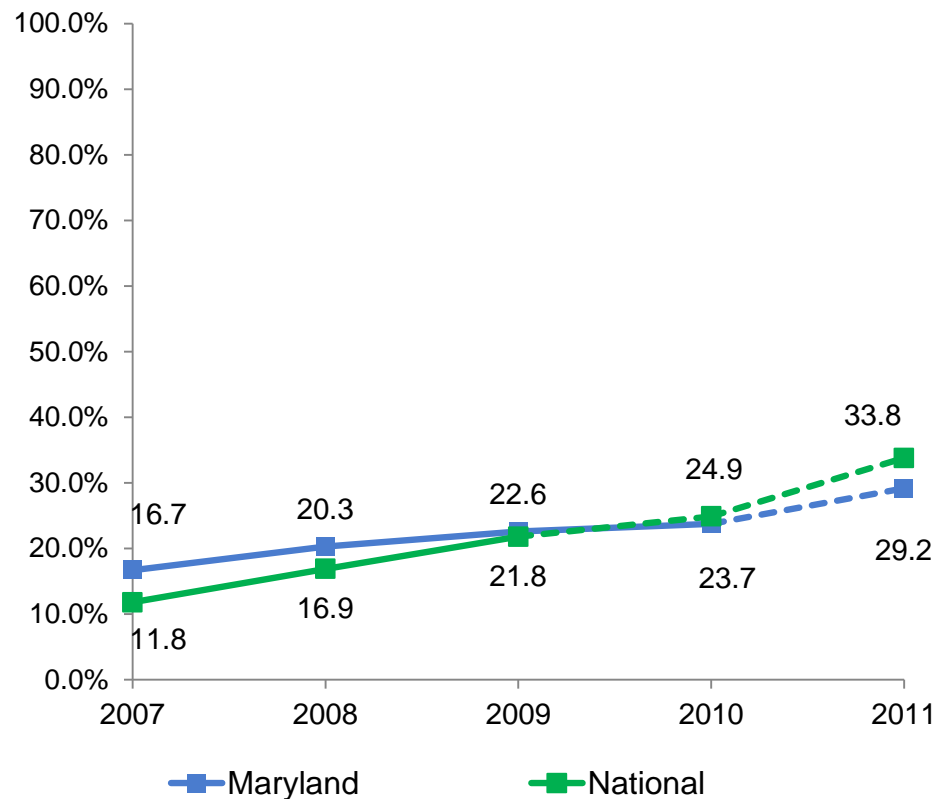**Telemedicine**

Patient portals

Automated Processes

- Notification of Hospitalization
- Medication and allergy interaction alerts
- Virtual consultation

Electronic Health Records

EHR Adoption

Office-Based Physicians

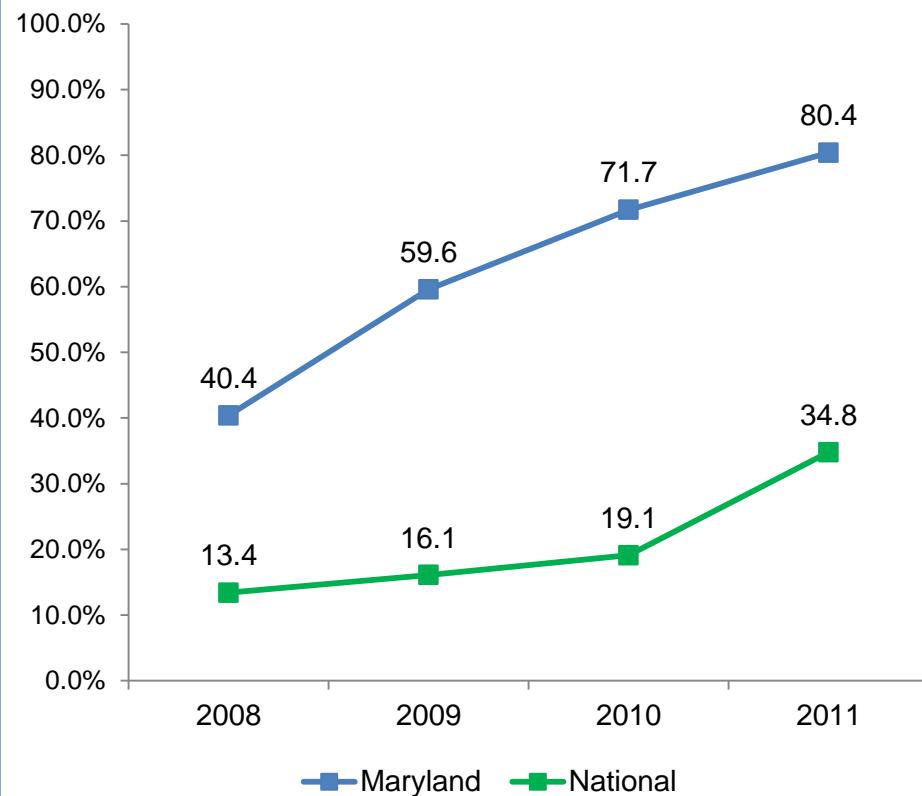| Year	Maryland	National
2007	16.7	11.8
2008	20.3	16.9
2009	22.6	21.8
2010	24.9	23.7
2011	29.2	33.8

Sources:
Maryland Data – Maryland Board of Physicians
National Data – National Center for Health Statistics, November 2011

Dash lines – Preliminary Data

Acute Care Hospitals

| Year	Maryland	National
2008	40.4	13.4
2009	59.6	16.1
2010	71.7	19.1
2011	80.4	34.8

Sources:
Maryland Data – MHCC Annual Health IT Survey of Acute Care Hospitals
National Data – Office of the National Coordinator for Health Information Technology and the American Hospital Association, AHA Annual Survey Information Technology Supplement, February 2012

Health Information Exchange
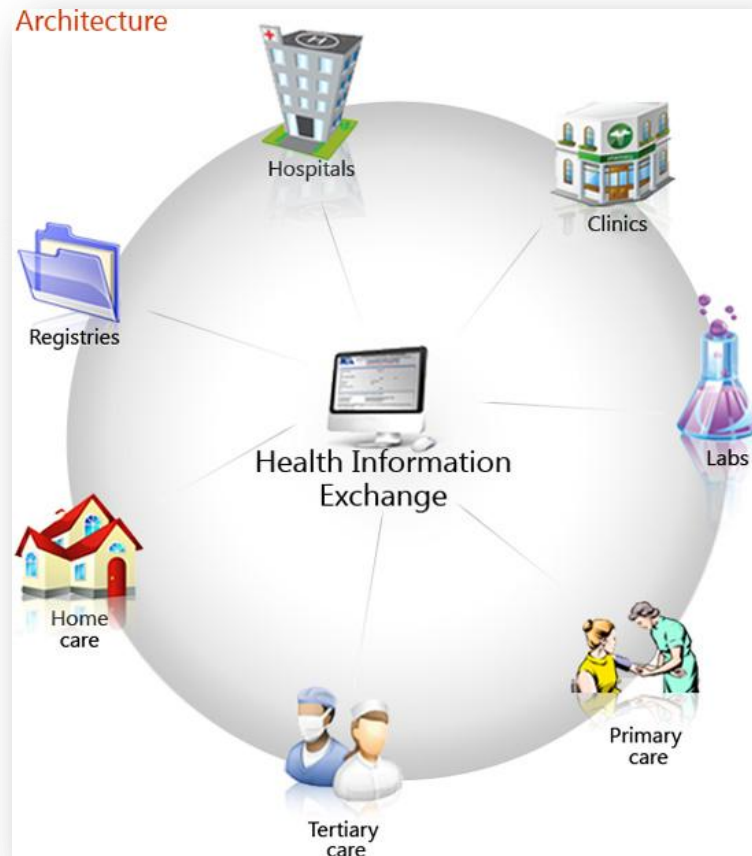
HIE Overview

- HIE is the secure electronic sharing of clinical and administrative information among disparate health information systems for clinical care, process improvement/simplification, research, and reporting

    - Providers with EHRs can join networks for secure health information exchange and electronically transmit patient health records

- HIEs have the potential to create efficiencies in the health care delivery system by reducing duplicate medical tests and improving care coordination among health providers

The Value of HIE for Providers

- Improved health outcomes

  - HIE can provide more up-to-date information patients, which can result in reduced medical errors and improved quality of care, especially during transitions of care

- Better communication

  - HIEs can help providers view a patient's full record electronically, which could include other physician visits, lab work, medications, etc.

- Streamlined practice processes

  - Tasks that are currently conducted manually – requesting results and patient summaries, sending referrals and receiving the reports, sending prescriptions, etc. – can be handled electronically

The Maryland Statewide HIE

- The Chesapeake Regional Information Systems for Our Patients (CRISP)

  - Competitively selected in August 2009

  - Went live with encounter data in the five Montgomery County hospitals in September 2010

- Maryland was the first State to connect all acute care hospitals to the State Designated HIE

- Two national laboratory and three radiology centers are sending reports to CRISP

Statewide HIE Infrastructure Design
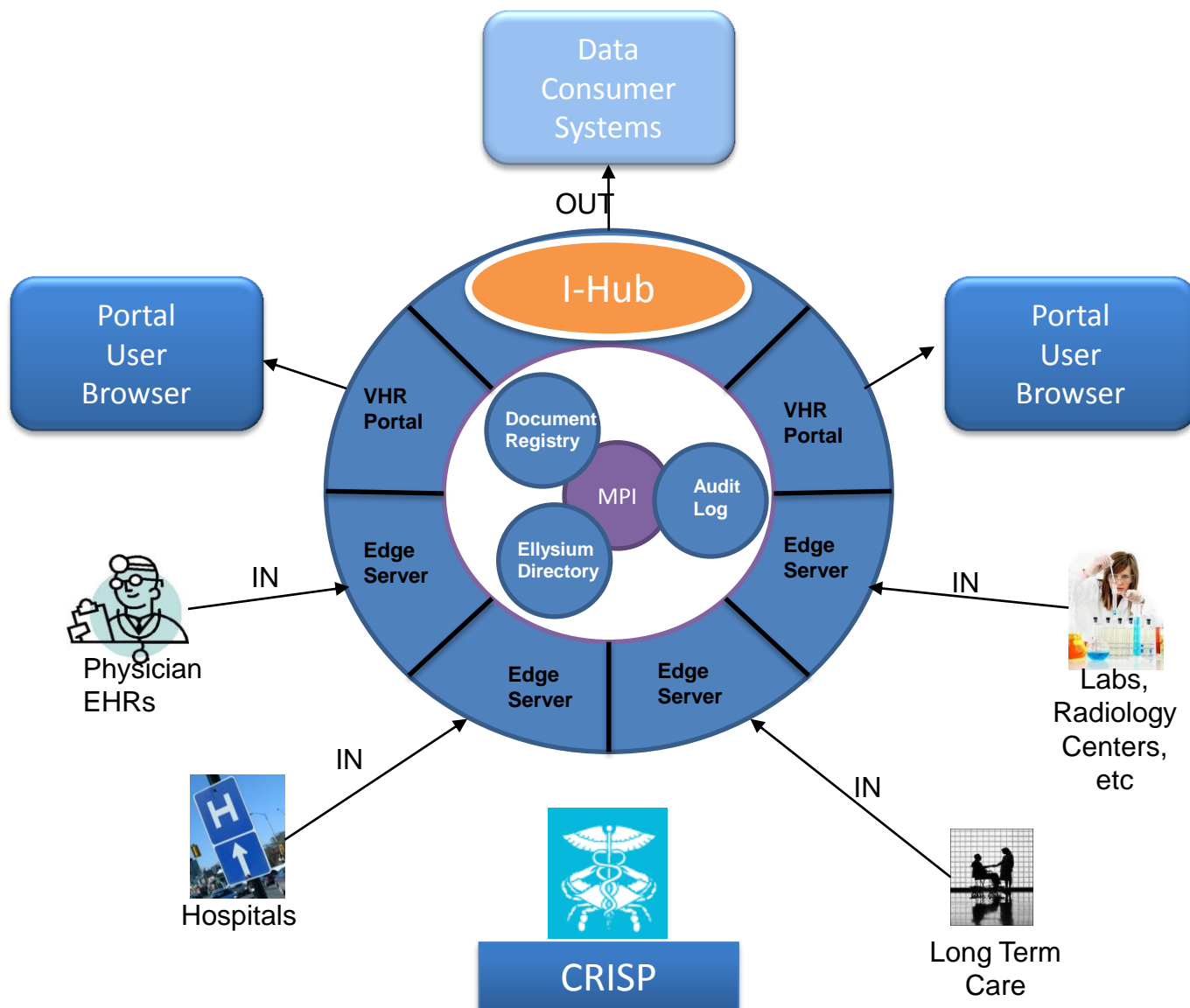
Hospital Data Submission

N=46 Acute Care Hospitals

Legend: Lab Data, Radiology Data, Transcribed Document Data, Encounter Data
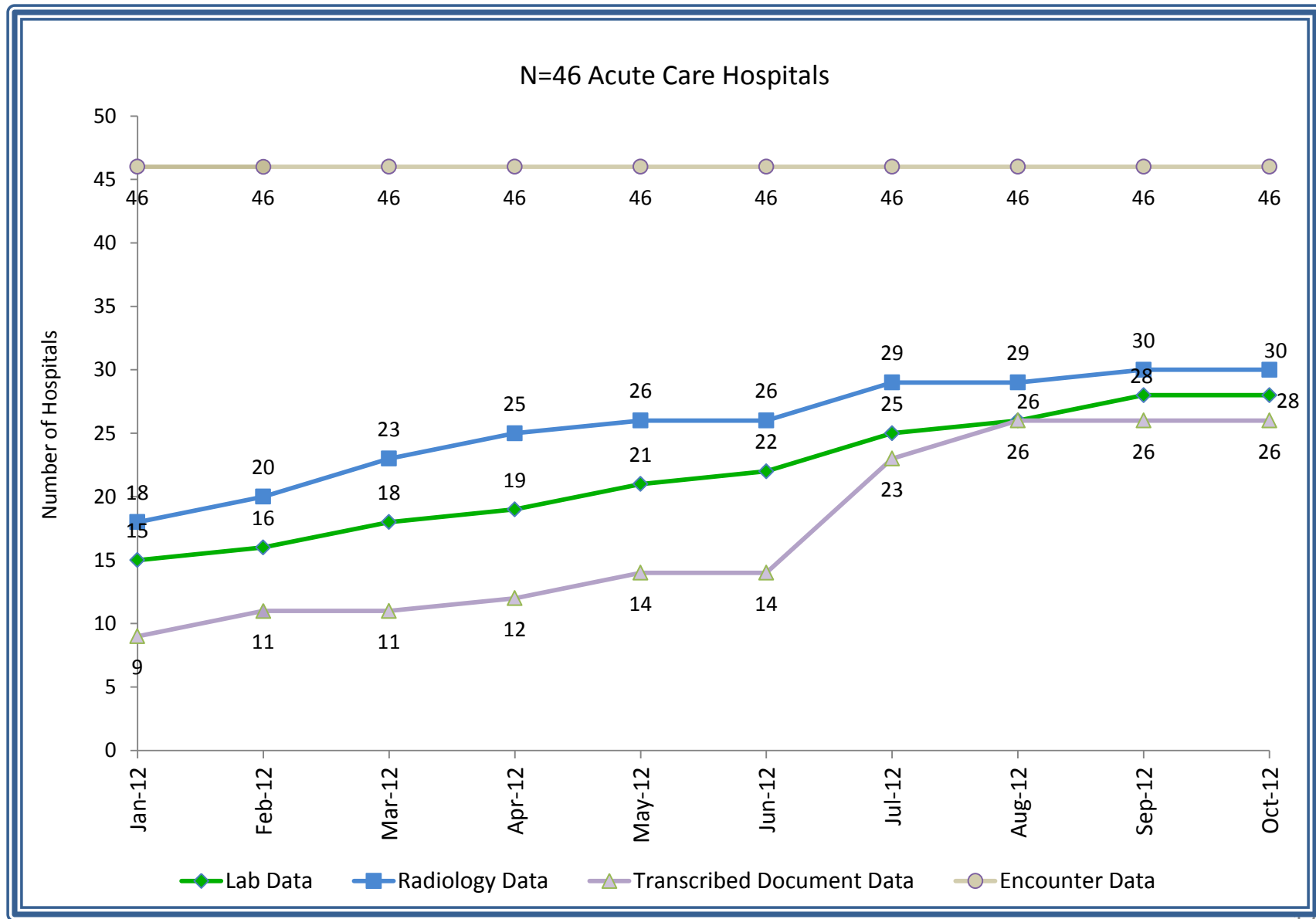
Hospital Participation

Count	Hospital	Current Status of Submission		
		Laboratory Reports	**Radiology Reports**	**Transcribed Documents**
1	Anne Arundel Medical Center	✓	✓	
2	Atlantic General Hospital	✓	✓	✓
3	Baltimore Washington Medical Center			
4	Bon Secours Baltimore Health System			
5	Calvert Memorial Hospital			
6	Carroll Hospital Center	✓	✓	✓
7	Chester River Hospital Center			
8	Civista Medical Center			
9	Doctors Community Hospital	✓		
10	Dorchester General Hospital			
11	Frederick Memorial Hospital	✓	✓	
12	Ft. Washington Hospital	✓	✓	✓
13	Garrett County Memorial Hospital	✓	✓	
14	Greater Baltimore Medical Center		✓	✓
15	Harford Memorial Hospital	✓	✓	✓
16	Holy Cross Hospital	✓	✓	✓
17	Howard County General	✓	✓	✓
18	James Lawrence Kernan Hospital			✓
19	Johns Hopkins Bayview Medical Center		✓	✓
20	Johns Hopkins Hospital		✓	✓
21	Laurel Regional			✓
22	Maryland General Hospital			
23	McCready Memorial Hospital	✓		

As of October 2012

✓ *= providing report/documents to the HIE*

Hospital Participation (continued)

Count	Hospital	Current Status of Submission		
		Laboratory Reports	Radiology Reports	Transcribed Documents
24	MedStar Franklin Square Hospital Center	✓	✓	
25	MedStar Good Samaritan Hospital	✓	✓	
26	MedStar Harbor Hospital	✓	✓	
27	MedStar St. Mary's Hospital	✓	✓	
28	MedStar Union Memorial Hospital	✓	✓	
29	Memorial Hospital at Easton Maryland			
30	Mercy Medical Center			
31	Meritus (Washington County Hospital System)	✓	✓	✓
32	MedStar Montgomery Medical Center		✓	✓
33	Northwest Hospital Center	✓	✓	✓
34	Peninsula Regional Medical Center			
35	Prince George's Hospital			✓
36	Shady Grove Hospital	✓	✓	✓
37	Sinai Hospital	✓	✓	✓
38	Southern Maryland Hospital Center	✓	✓	✓
39	St. Agnes Healthcare	✓	✓	✓
40	St. Joseph Medical Center	✓	✓	✓
41	Suburban Hospital	✓	✓	✓
42	Union Hospital Cecil County	✓	✓	✓
43	University of Maryland Medical Center			✓
44	Upper Chesapeake Medical Center	✓	✓	✓
45	Washington Adventist	✓	✓	✓
46	Western Maryland Health System	✓	✓	✓
	Total	**27**	**30**	**26**

As of October 2012

☑ = *providing reports/documents to the HIE*

Statewide HIE Metrics

Metrics	Result
Organizations Live	
Acute Care and Specialty Hospitals (Total 48)	48
Hospital Clinical Data Feeds (Total 143 - Lab, Radiology, Clinical Docs)	86
National Labs	2
Radiology Centers (Non-Hospital)	5
Identities and Queries	
Master Patient Index (MPI) Identities	~4M
Opt-Outs	~1500
Queries (Past 30 Days)	~7000
Data Feeds Available	
Lab Results	~18M
Radiology Reports	~4M
Clinical Documents	~2M

As of October 2012

CRISP Portal

- Information obtained through the portal can be printed and incorporated into patient's records

- Types of data available:

  - Medication fill
  - Patient demographics
  - Lab results
  - Radiology reports
  - Discharge summaries
  - History and physicals
  - Operative notes
  - Consults

"Nurse, get on the internet, go to SURGERY.COM, scroll down and click on the 'Are you totally lost?' icon."

Summary Page

Medication History

Radiology Reports

Welcome, Test Userone - Thursday, April 14

SMITH, John J - 01/16/1942 M   Visit: [ ]   Facility: [ ]   From: [1/1/2006]   To: [4/14/2011]

| All | Summary | Cumulative Lab | Lab | Radiology | Reports | ADT | Consent | Office Memos | Encounters | Orders | Patient Info | Open Report |

All action times shown on this page are in Eastern Daylight Time.

Elysium **FINAL** RADIOLOGY RESULTS FROM GENERAL HOSPITAL

▶   SMITH, John J ID: 128365[GEN] DOB: 16-Jan-1942 Age: 69 Years Sex: M Phone: (585) 293-1042

▶ Ordered **STAT** by **Ted D Kennedy**

All clinical times shown on this page are in Pacific Standard Time.

HANDS   Performed on:13-Feb-2007
                                                     Read by:SHARON KOWOSKI

REASON FOR HANDS : Joint Pain, History of RH   Verified by:SHARON KOWOSKI
Arthritis
Impression
No significant interval change in appearance of the right and left hands.

Report

We appreciate the opportunity to see your patient.

CLINICAL INFORMATION: History of rheumatoid arthritis with joint pain.

RIGHT HAND EXAM: Three views of the right hand are provided and compared with prior of 2/1/06.

FINDINGS: There is marked narrowing of the metacarpophalangeal joints, which has not progressed significantly since the prior study.
Scaphoid waist erosion is also suspected.

LEFT HAND EXAM: Three views of the left hand are provided and compared with prior of 2/1/06.

FINDINGS: There is marked narrowing of the metacarpophalangeal joints, which has not progressed significantly since the prior study.
Scaphoid waist erosion is also suspected.

Smith, John Hands Studies Right Mouse Click to open in New Tab or Window

003409254400002 DX501516 1
DSC Radiology: Radiology Department of Dominican Santa Cruz   003409254400002
Hospital
1555 Soquel Drive, Santa Cruz CA 95065   DJDJDDIHBEF

[To Top]

Done   Internet | Protected Mode: On   105%

Lab Results

Welcome, Test Userone - Thursday, April 14

SMITH, John J - 01/16/1942 M   Visit: [ ] Facility: [ ] From: [1/1/2006] To: [4/14/2011]

| All | Summary | Cumulative Lab | Lab | Radiology | Reports | ADT | Consent | Office Memos | Encounters | Orders | Patient Info | Open Report |

* All action times shown on this page are in Eastern Daylight Time.

Elysium FINAL LAB RESULTS FROM GENERAL HOSPITAL HOSPITAL

▶ SMITH, John J ID: 000174922[GEN] DOB: 16-Jan-1942 Age: 69 Years Sex: M Phone: 8314765949

▶ Ordered STAT by Than Nguyen, MD

* All clinical times shown on this page are in Pacific Daylight Time.

Hematology CBC   Sample taken on:30-Sep-2003 01:18 PM

Observation		Value	Reference Range	Units	Note
WBC		5.10	4.80-10.80	THOUSAND	
HEMOGLOBIN	↓	11.6	14.0-18.0	G/dl	
HEMATOCRIT	↓	34.1	42.0-54.0	PERCENT	
PLATELETS		202	130-400	THOUSAND	
RBC	↓	3.68	4.70-6.10	MILLION	
MCV		92.8	83.0-99.0	fl	
MCH		31.4	27.0-32.0	pg	
MCHC		33.9	32.0-37.0	G/dl	
RDW		13.1	11.5-14.5	PERCENT	
NEUTROPHILS	↑	80.1	40.0-74.0	PERCENT	
LYMPHOCYTES	↓	11.6	19.0-48.0	PERCENT	
MONOCYTES		6.8	3.5-9.0	PERCENT	
EOSINOPHILS		1.0	0.0-7.0	PERCENT	
BASOPHILS		0.4	0.0-1.5	PERCENT	
NEUT,ABSOLUTE		4.09	1.90-8.00	THOUSAND	
LYMPH,ABSOLUTE	↓	0.59	0.90-5.20	THOUSAND	
MONO, ABSOLUTE		0.35	0.16-1.00	THOUSAND	
EOS. ABSOLUTE		0.05	0.00-0.80	THOUSAND	
BASO, ABSOLUTE		0.02	0.00-0.20	THOUSAND	
MAN BAND NEUT		3	0-8	PERCENT	
MAN SEG NEUT.	↑	78	40-74	PERCENT	
MAN LYMPHOCYTE	↓	15	19-48	PERCENT	
MAN MONOCYTE		4	4-9	PERCENT	
MAN EOSINOPHIL		0	0-7	PERCENT	
MAN BASOPHILS		0	0-2	PERCENT	
MAN METAMYLO.		0	0-1	PERCENT	
MAN MYELOCYTE		0	0-1	PERCENT	
MAN PROMYELO.		0	0-0	PERCENT	
MAN BLASTS		0	0-0	PERCENT	

Done

Internet | Protected Mode: On   105%

Transcribed Reports

Welcome, Test Userone - Thursday, April 14

SMITH, John J - 01/16/1942 M   Visit:____   Facility:____   From: 1/1/2006   To: 4/14/2011

All | Summary | Cumulative Lab | Lab | Radiology | Reports | ADT | Consent | Office Memos | Encounters | Orders | Patient Info | **Open Report**

All action times shown on this page are in Eastern Daylight Time.

Elysium TRANSCRIPTION RESULTS FROM ELYSIUM ATMS

▶ SMITH, John J ID: 149804[] DOB: 16-Jan-1942 Age: 69 Years Sex: Unknown Phone: (585) 293-1042

▶ Ordered by **Than Nguyen**

All clinical times shown on this page are in Pacific Standard Time.

Discharge Summary   Produced by:**VERNON LOVERDE**

Admit Date:**11-Feb-2002 12:00 AM**
Discharge Date:**15-Feb-2002 12:00 AM**

REASON FOR ADMISSION:
1. Respiratory failure.
2. Chronic obstructive pulmonary disease.
3. Left lower lobe pneumonia.
4. History of congestive heart failure.
5. Chronic renal failure.
6. Back pain.
7. Glaucoma.

The patient had left lower lobe infiltrates on chest x-ray, a white count of 33,000 with 4% bands, hemoglobin and hematocrit were normal and electrolytes and chemistry-7 were essentially normal except the creatinine was 2.3 and BUN was 81. The patient had a prior lobectomy. She was treated empirically with Ceftin and Flagyl, received respiratory treatments and steroids with an apparent good clinical response. White blood cell count came down and she had control of her pain, morphine available, using low-dose Vicodin. The patient also has glaucoma and receives Xalatan and Alphagan.

HOSPITAL COURSE:
The hospital course was uncomplicated; however the patient remained somewhat confused. The family asked per their durable power of attorney in a prior discussion with Dr. Rosenbaum and made the patient, NO CPR, NO CODE, and indeed engaged Hospice in her care. She is therefore discharged to Brommer Manor to complete her current course of antibiotics and enter Hospice care.
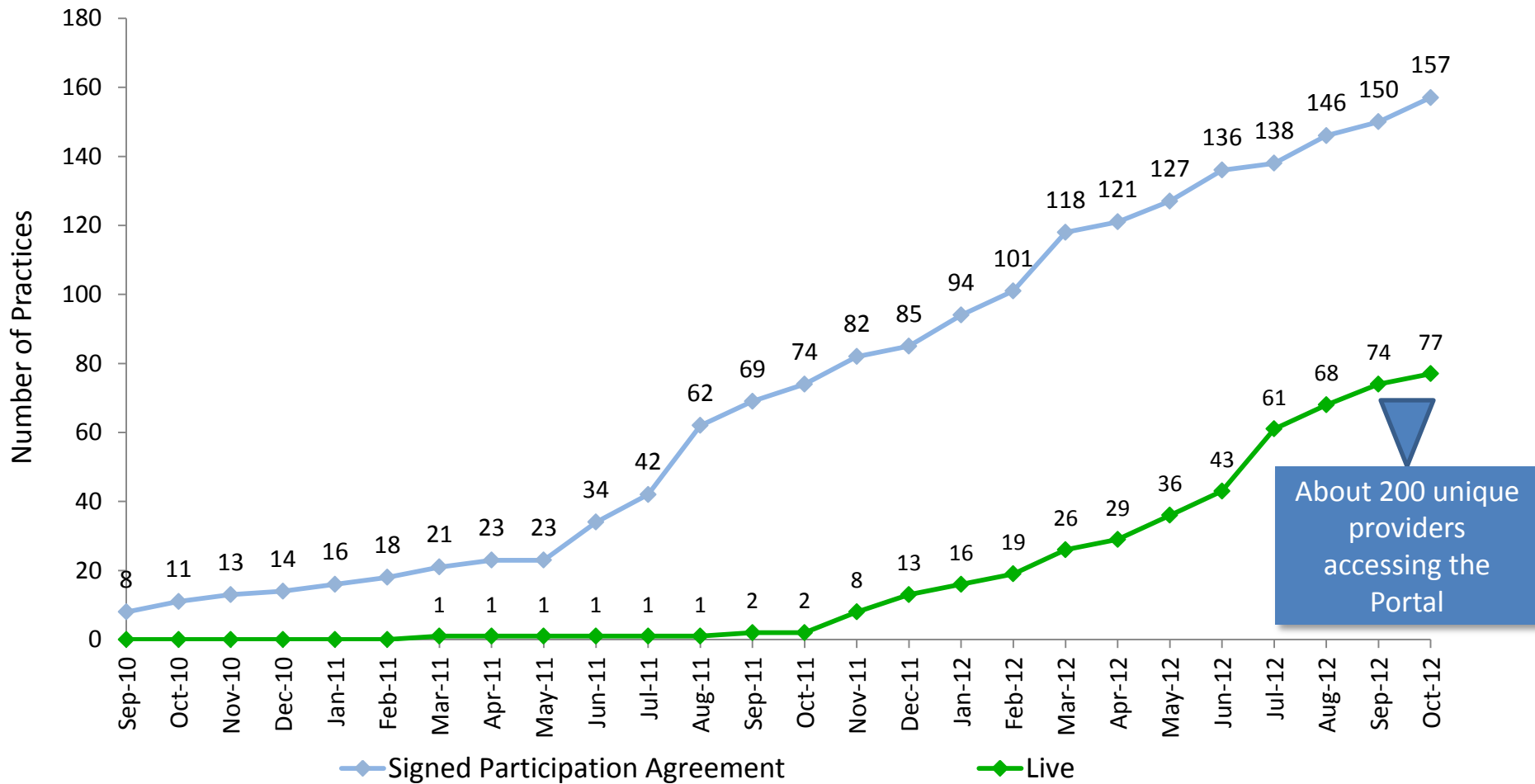
DISCHARGE MEDICATIONS:
Vicodin PRN
Premarin 0.625 q.d.
Quinapril 10 mg q.d.
Amytriptyline 10 mg q.h.s.
Xalatan and Alphagan ophthalmic, one O.U. q.h.s. and one O.U. b.i.d. respectively.
Prednisone 40 mg as 20 mg b.i.d. which will taper to once daily after a week and then check with the MD as to ongoing need.
She had received Pepcid, that will continue.
Further management per Dr. Larry Rosenbaum and in accord with Dr. Williams who rounds for our group at Brommer Manor.
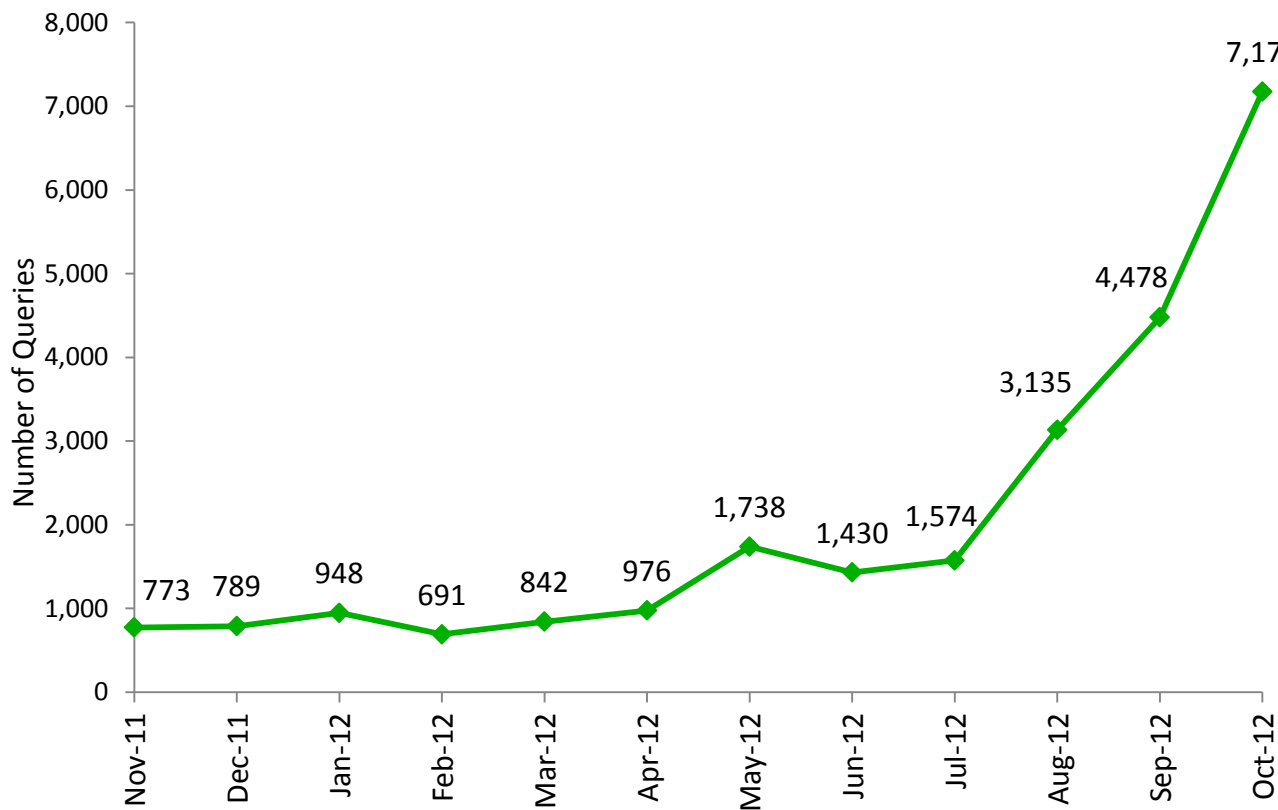
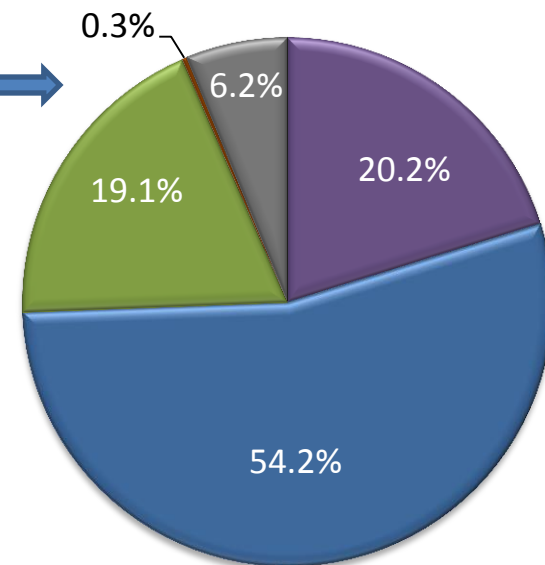VERNON D. LOVERDE, M.D.

D: 02/15/2002

Internet | Protected Mode: On   105%

CRISP Portal Adoption

About 200 unique providers accessing the Portal

Legend: Signed Participation Agreement | Live

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CRISP Portal – Monthly Activity

October Queries by Practice Type

Number of Queries

Month	Value
Nov-11	773
Dec-11	789
Jan-12	948
Feb-12	691
Mar-12	842
Apr-12	976
May-12	1,738
Jun-12	1,430
Jul-12	1,574
Aug-12	3,135
Sep-12	4,478
Oct-12	7,175

Pie chart (October Queries by Practice Type):
- Ambulatory: 20.2%
- Cancer Registry: 54.2%
- Hospital: 19.1%
- Long Term Care Facilities: 0.3%
- Radiology: 6.2%

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CRISP Portal – Cancer Registry Participants

Hospitals	
Anne Arundel Medical Center	Shady Grove Adventist Hospital
Baltimore Washington Medical Center	Sinai Hospital
Carroll Hospital Center	St. Agnes Hospital
Frederick Memorial Hospital	St. Joseph Medical Center
Greater Baltimore Medical Center	St. Mary's Hospital
Harbor Hospital	Union Hospital of Cecil County
Johns Hopkins Bayview Medical Center	Union Memorial Hospital
Johns Hopkins Hospital	University of Maryland Medical Center
Franklin Square Hospital	Upper Chesapeake Medical Center
Good Samaritan Hospital	Washington Adventist Hospital
Northwest Hospital	Western Maryland Health System

Direct Messaging – Secure E-mail

- Direct Messaging is a HIPAA compliant, secure and encrypted e-mail service that supports electronic communication between physicians, nurse practitioners, physician assistants, and other health care providers

  - It allows health care providers/staff and those using different EHR systems to electronically send messages to one another, and attach and exchange health information through a secure email solution

  - All Maryland based health care providers are eligible for a CRISP DIRECT Messaging account and only need an Internet connection to start using this information-sharing tool

  - Requires a partner using Direct Messaging to exchange information

Direct Messaging Adoption (Secure e-Mail)
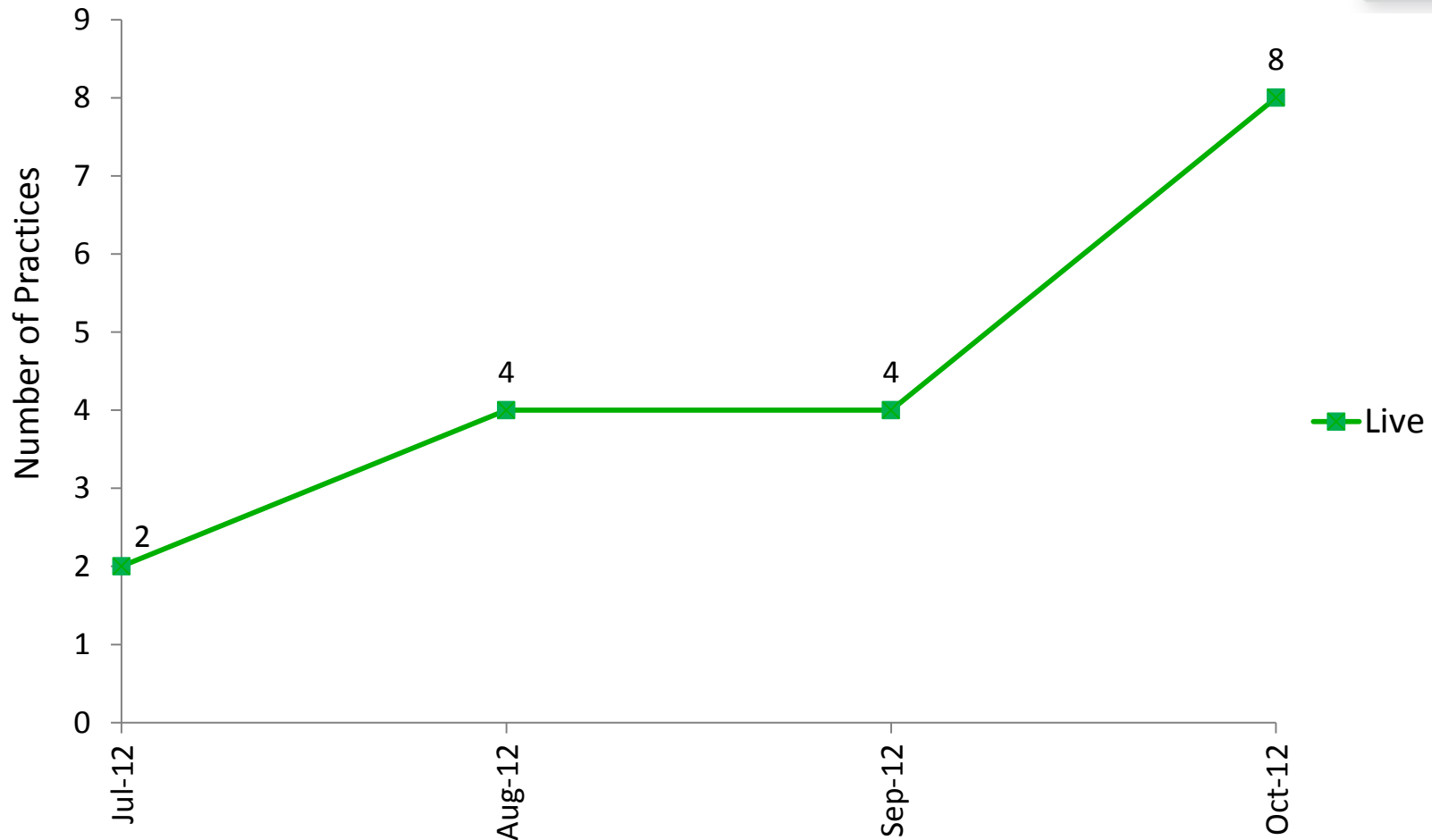
Encounter Notification Service (ENS)

- The State Designated HIE currently receives notifications in real-time from all Maryland hospitals regarding patient admissions, transfers, and discharges

- Providers who would like to track certain patients on their patient panel can choose to receive notifications when their patients have an encounter at any hospital in Maryland

  - Subscribers submit a patient panel to CRISP

- Notifications currently include demographic information and the event types; including chief complaint and discharge diagnosis could increase the value of the service significantly

  - ENS went live on August 3rd with practices at three hospital partners: Harbor Hospitals, St. Josephs, and Greater Baltimore Medical Center

  - There are currently roughly 15 other participants in the pipeline for go-live

ENS Available Information

Encounter Notification Service

Encounter Reporting System

- Reports include demographic information and the hospital event types, such as emergency department visits
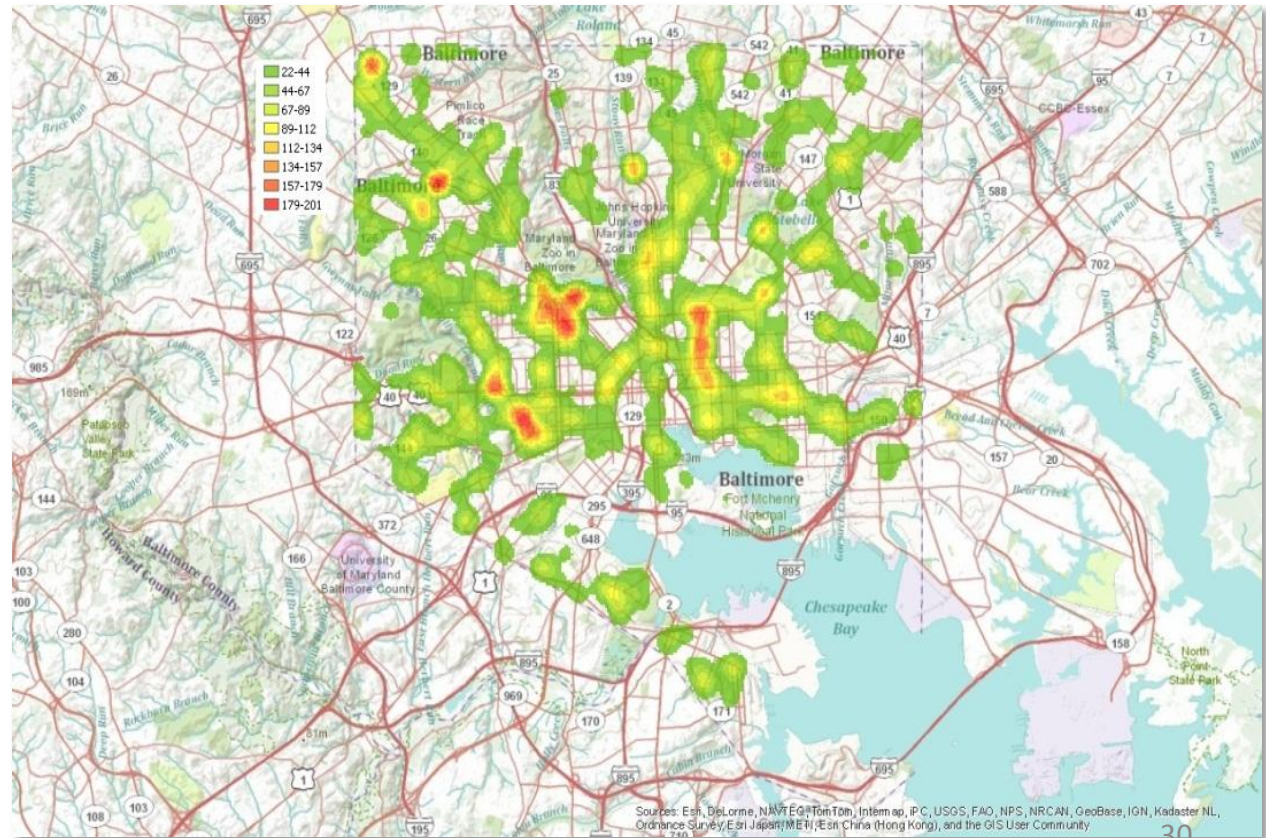
- Inter-hospital readmission reports have been distributed to half of Maryland hospitals

- The reports can be Geocoded for public health applications

Public Health Reporting

- The State Designated HIE is working with the Department of Health and Mental Hygiene (DHMH) to identify areas where it can leverage hospital connectivity and the overall HIE infrastructure to provide value to the public health community

  - Certain clinical information is required to be reported to public health agencies, as well as required for meeting meaningful use incentives

  - Receiving reportable lab results, immunization data, and syndromic surveillance data

- The State Designated HIE is deploying the web-based portal to hospital staff who report to cancer registries so that they can more easily find the reportable information

Statewide HIE
Rights of Patients

Patient Choice in Access

- Patient may opt-out of the statewide HIE; information will not be available for query through the HIE

  - Patients may <u>not</u> opt-out of lab and radiology reports to ordering providers and records that are required to be reported by law

  - 29 other states and territories also have an opt-out model

  - Patients my opt back in at any time

- Participating providers make information available to patients regarding:

  - Their participation with the statewide HIE

  - A patient's choice to opt-out

Patient Access to Records

- Patients may **request from CRISP**

  - A report on what information is being made available to the HIE and by what entity

  - Who has accessed their information through the HIE

- Patient must **request from the entity** that holds the record

  - Detailed health records and any amendment to their health record

- Future vision for patient electronic access of information through the statewide HIE

  - Value-add to existing patient centered health care management technology solutions, like personal health records, provider EHR portals, health-related informational web sites, mobile health apps, etc.

Questions?

The MARYLAND HEALTH CARE COMMISSION

Center for Health Information Technology

Webpage: http://mhcc.dhmh.maryland.gov

Email: Angela.Plunkett@maryland.gov

Phone: 410-764-3574